WARWICK, WELLS, and TAYLOR. *The great state.* (New York: Harper. 1912. Pp. 379.)

———————— *Report on profit-sharing and labour co-partnership in the United Kingdom.* (London: Board of Trade, Labour Dept. 1912. Pp. 160. 8½d.)

Statistics and Its Methods

La Distribuzione dei Redditi nelle Provincie e nelle Grandi Città dell'Austria. By FRANCO SAVORGNAN. (Triest: Museo Commerciale. 1912.)

Despite the unsatisfactory fiscal results of the income tax established in Austria in 1896, the administration of the tax has yielded an unusually valuable body of statistical data relating to the distribution of wealth. The tax is a direct levy upon all incomes of more than 2,000 crowns. Progressive improvements in its administration have greatly increased the number of taxpayers, but there is nothing in the general trend of the changes thus introduced in the statistics yielded by the tax that indicates that evasions of the tax are distributed either geographically or among various economic classes in other than a fairly random fashion.

The statistics for the period from 1896 to 1904 have been surveyed in some detail by F. Leiter (*Die Verteilung des Einkommens in Oesterreich.* Vienna; 1907). Pareto's income curve has been fitted to the figures for the year 1899 by M. Pierre des Essars (*Journal de la Société de Statistique de Paris*, XLIII, 222-225). The latest study is the title noted above, by Professor Franco Savorgnan of the High School of Commerce of Triest. Savorgnan's work is given an especial interest by his use of the index of the inequality of the distribution of incomes recently devised by Corrado Gini (*Indici di Concentrazione e di Dipendenza*, in *Biblioteca dell'Economisti*, series V, vol. XX, 1910).

Gini's index may be readily understood by comparing it with the well-known index of Pareto. If n be taken to represent the number of persons whose income is greater than x, and if the sum of the incomes individually greater than x is represented by S, Pareto's equation will read, $\log n = \log A - \alpha \log x$, and Gini's will read, $\log n = \delta \log S - \log K$, where α, δ, A, and K are constants derived from the given statistics. Pareto assumes that n is an algebraic function of x, the limiting income, while Gini makes n an algebraic function of S, the total amount of the in-

comes individually larger than the specified limit. Gini's index of the inequality of the distribution of incomes is the constant δ, which, like Pareto's α, measures the slope of the straight line which is the graph of the equation. Pareto's index measures in a general way the rate at which income receivers thin out as we pass from the lower to the higher income groups. Gini's index measures in a similarly general fashion the rate at which the number of income receivers increases as, shifting the lower limit of the incomes considered from the maximum toward the minimum, we bring under our survey successively larger portions of the total amount of incomes.

Although α is supposed to be used as a measure of "inequality" in the distribution of incomes, it is clear that (through an increase both in the size of the largest incomes and in the relative numbers of the receivers of large incomes) a massing of a larger percentage of the total income in the hands of a few income receivers may be accompanied by a decreasing value of α. Even without an increase in the size of large incomes, a smaller value of α may often result from what would generally be deemed an increased concentration of wealth. Gini's index, however, is larger or smaller according as what in the generally accepted usage is inequality in the distribution of incomes is larger or smaller. Pareto's index is really a measure of the unevenness with which income receivers are distributed over the existing income range—whatever this range may happen to be. Gini's δ, on the other hand, indicates the inequality in the numbers of the income receivers who get the various aliquot parts of the total income. Moreover, δ has the further advantage that it approaches unity as the distribution of incomes approaches absolute uniformity and that Gini's equation fits the general run of income statistics more accurately than does Pareto's.

For Austria as a whole Savorgnan finds the following values of δ: 1898, 2.79; 1904, 2.70; 1908, 2.79. Among the provinces the inequality of income distribution is greatest in Lower Austria (3.29 in 1908), Voralberg (2.76), Silesia (2.59), and Bohemia (2.58). The distribution is least unequal in Dalmatia (1.91) and Tyrol (2.13). Incomes are classified in the published statistics under six heads, according to source and nature, but there does not seem to be any marked correlation between the dominance of particular kinds of income in a province and its ranking as regards the inequality of incomes. It is clear, however, that the provinces

in which the concentration of incomes is most marked are those in which the average income is highest and in which industry and commerce are most highly developed. In most of the larger cities, concentration is greater than in the other districts of the respective provinces. In Vienna the value of δ for 1908 was 3.44.

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<div align="center">NEW BOOKS</div>

DRYSDALE, C. V. *Diagrams of international vital statistics. With description in English and Esperanto. Together with a table of correlation, co-efficients between birth and death rates, etc.* (London: Bell. 1912. 6d.)

KAUFMANN, A. *Lehrbuch der Statistik.* (Tübingen: J. C. B. Mohr. 1912.)

SIGERIUS, A. *Handelsbetriebsstatistik.* (Leipzig: B. G. Teubner. 1912.)

ZIZEK, F. *Soziologie und Statistik.* (Leipzig: Duncker und Humblot. 1912. Pp. 46. 1.50 m.)

———————— *Infant mortality. Report of the special committee appointed by the council of the Royal Statistical Society to enquire into the systems adopted in different countries for the registration of births (including stillbirths) and deaths with reference to infantile mortality.* (London: Royal Statistical Society. 1912. Pp. 61. 1s.)

A questionnaire was sent to 133 registration officers in various countries, states, and provinces, and replies were received from 103. Contains a brief sketch of the history of registration followed by a discussion of practice, treatment of stillbirths, and statistical methods. This is a most convenient report and especially valuable to the student of vital statistics.

———————— *Official year book of the Commonwealth of Australia containing authoritative statistics for the period 1901-1911 and corrected statistics for the period 1788 to 1900.* (Melbourne: Commonwealth Bureau of Census and Statistics. 1912. Pp. xl, 1277.)